

SELF-ILLUMINATING DISPLAY SHELF ASSEMBLY

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to a display shelf assembly,
5 more particularly to a display shelf assembly which is
self-illuminating.

2. Description of the Related Art

Referring to Figure 1, a conventional display shelf
assembly 1 includes a plurality of display units 14
10 mounted on a wall 15, and a plurality of lighting
fixtures 12 mounted on a ceiling 13 for projecting light
on objects 11 disposed on the display units 14. Since
the lighting fixtures 12 are fixed on the ceiling 13,
the positions of the display units 14 are restricted.
15 Additionally, it is required to adjust the lighting
fixtures 12 when the positions of the objects 11 on the
display units 14 are changed.

Referring to Figure 2, another conventional display
shelf assembly 2 includes a plurality of transverse
20 rods 23 and a plurality of lighting fixtures 22 mounted
directly on the transverse rods 23. Although the
conventional display shelf assembly 2 can overcome the
shortcomings of the aforesaid prior art shown in Figure
1, the lighting fixtures 22 occupy some of the display
25 spaces of the shelf assembly 2, and have a negative
effect on the overall aesthetic appeal of the shelf
assembly 2.

SUMMARY OF THE INVENTION

Therefore, it is an object of the present invention to provide a display shelf assembly which is capable of self-illuminating so as to overcome the aforesaid shortcomings of the prior art.

According to this invention, the self-illuminating display shelf assembly includes at least one shelf member formed as a light guide panel, a shelf support to hold the shelf member in a horizontal position, and an irradiating unit for irradiating the light guide panel. The light guide panel includes a top face, a bottom face, and an edge face interconnecting the top and bottom faces. The irradiating unit includes an elongated shroud mounted on the light guide panel and covering the edge face, and a light emitting element mounted on the shroud and confronting the edge face of the light guide panel. The light emitting element is operable so as to produce light that is incident on the edge face of the light guide panel.

BRIEF DESCRIPTION OF THE DRAWINGS

Other features and advantages of the present invention will become apparent in the following detailed description of the preferred embodiments with reference to the accompanying drawings, of which:

Figure 1 is a schematic view of a conventional display shelf assembly;

Figure 2 is a perspective view of another

conventional display shelf assembly;

Figure 3 is a partly exploded perspective view of the first preferred embodiment of the self-illuminating display shelf assembly according to this invention;

Figure 4 is a fragmentary partly sectional view of the first preferred embodiment;

Figure 5 is an exploded perspective view of a shelf member included in the first preferred embodiment;

Figure 6 is a fragmentary schematic front view of the first preferred embodiment;

Figure 7 is a fragmentary perspective view of the second preferred embodiment of the self-illuminating display shelf assembly according to this invention;

Figure 8 is a fragmentary schematic partly sectional view of the second preferred embodiment;

Figure 9 is a fragmentary schematic partly sectional view of the third preferred embodiment of the self-illuminating display shelf assembly according to this invention; and

Figure 10 is a fragmentary schematic partly sectional view of the fourth preferred embodiment of the self-illuminating display shelf assembly according to this invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to Figures 3, 4 and 5, the first preferred embodiment of a self-illuminating display shelf

assembly 3 according to this invention is shown to include a plurality of shelf members 32, each of which is formed as a transparent light guide panel 321, a shelf support 41 to hold the shelf members 32 in a horizontal position, and a plurality of irradiating units 33 for irradiating the light guide panels 321, respectively. Each of the light guide panels 321 includes a top face 34, a bottom face 35, and a first edge face 36 interconnecting the top and bottom faces 34, 35. Each of the irradiating units 33 includes an elongated shroud 331 mounted on the light guide panel 321 and covering the first edge face 36, and a light emitting element 333 mounted on the shroud 331 and confronting the first edge face 36. The light emitting element 333 is operable in a known manner so as to produce light that is incident on the first edge face 36.

The shroud 331 includes a longitudinal upper plate portion 3311, a longitudinal lower plate portion 3312, a longitudinal lateral plate portion 332 interconnecting the upper and lower plate portions 3311, 3312, and a longitudinal groove 3313 defined between the upper and lower plate portions 3311, 3312 to receive the first edge face 36 of the light guide panel 321. The light emitting element 333 extends between the first edge face 36 and the lateral plate portion 332. The longitudinal lower plate portion 3312 of the shroud 331 has a receiving space 3314 formed therein. Each

irradiating unit 33 further includes a power unit 334 received in the receiving space 3314.

5 The light guide panel 321 further includes a second edge face 37 opposite to the first edge 36. The shelf member 32 further includes a reflection layer 325 overlying the second edge face 37. In this embodiment, the shelf member 32 further includes a plurality of light deflection parts 322 formed on the top and bottom faces 34, 35 of the light guide panel 321. Preferably, 10 the light deflection parts 322 increase in size from the first edge face 36 in a direction toward the second edge face 37. The shelf member 32 further includes two translucent diffusing sheets 323, each of which overlies a corresponding set of the light deflection parts 322 of the light guide panel 321, and two 15 transparent top plates 324, each of which overlies a corresponding one of the translucent diffusing sheets 323.

20 The shelf support 41 of this embodiment includes a pair of upright support members 423 secured on a wall 30 with the use of screws 301, and a plurality of pairs of horizontal support elements 411 having rear end plate portions 4111 mounted respectively on the upright support members 423. The upper, lower and lateral plate portions 3311, 3312, 332 of the shroud 331 of each 25 irradiating unit 33 extend between and are connected to the rear end plate portions 4111 of the respective

pair of the horizontal support elements 411. The horizontal support elements 411 further have front arm portions 4112 extending forwardly and respectively from the rear end plate portions 4111 to support the bottom face 35 of the respective light guide panel 321. Each of the shelf members 32 is secured on the front arm portions 4112 of the respective pair of the horizontal support elements 41 using any suitable manner well known in the art, such as with the use of screws 412. The upright support members 423 have a plurality of anchor holes 424. The rear end plate portions 4111 of the horizontal support elements 411 have anchor hooks 421 for engaging respectively the anchor holes 424 in the upright support members 423. The shelf support 41 further includes locking units 43 at the rear end plate portions 4111 for abutting against the upright support member 423 by screwing so as to reinforce the engagement between the horizontal support elements 411 and the upright support members 423.

Referring to Figures 3, 4, and 6, during installation of the self-illuminating display shelf assembly 3, the upright support members 423 are first secured on a wall 30 with the use of the screws 301. The anchor hooks 421 of each pair of the horizontal support elements 411 are then engaged respectively with the anchor holes 424 in the upright support members 423.

Each of the shelf members 32, together with the corresponding irradiating unit 33, is subsequently secured on the respective pair of the horizontal support elements 41 with the use of the screws 412. Finally,
5 the locking units 43 of the shelf supports 41 are screwed to abut against the upright support members 423 so as to reinforce the engagement between the horizontal support elements 411 and the upright support members 423.

10 After completing the installation, the irradiating units 33 are actuated by turning on the power units 334. The light incident through the first edge face 36 of the light guide panel 32 from the respective irradiating unit 33 is reflected toward the top and
15 bottom faces 34, 35 of the light guide panel 32, thereby illuminating the objects 302 displayed on the shelf members 32.

Referring to Figures 7 and 8, the second preferred embodiment of this invention is similar to the first
20 preferred embodiment in structure, except for the following. The shelf support 52 includes a plurality of hanging strings 522 to hang the light guide panel 62. Each of the hanging strings 522 includes at least one engaging element 521 connected to the light guide
25 panel 62. The engaging element 521 has a vertical through hole 524 for extension of a corresponding one of the hanging strings 522, and a bifurcated end 523

to hold the light guide panel 62.

Referring to Figure 9, the third preferred embodiment of this invention is similar to the first preferred embodiment in structure, except for the following. The shelf member 7 includes a plurality of light deflection parts 722 formed on the top face 7211 of the light guide panel 721, a translucent diffusing sheet 723 mounted on the bottom face 7212 of the light guide panel 721, and a reflective sheet 726 covering the light deflection parts 722.

Referring to Figure 10, the fourth preferred embodiment of this invention is similar to the first preferred embodiment in structure, except for the following. The shelf member 82 includes a plurality of light deflection parts 822 formed on the bottom face 8212 of the light guide panel 821, a translucent diffusing sheet 823 mounted on the top face 8211 of the light guide panel 821, and a reflective sheet 826 covering the light deflection parts 822.

While the present invention has been described in connection with what is considered the most practical and preferred embodiments, it is understood that this invention is not limited to the disclosed embodiments but is intended to cover various arrangements included within the spirit and scope of the broadest interpretation so as to encompass all such modifications and equivalent arrangements.